TX-84/TX-84M

SERIAL No. 3257

ONKYO® SERVICE MANUAL

QUARTZ SYNTHESIZED
TUNER AMPLIFIER
MODELS TX-84/TX-84M

Black model

BHUD, BHUDN	120V AC, 60Hz
BHUG	220V AC, 50Hz
BHUQ	240V AC, 50Hz
BHUWX	120/220V AC, 50/60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS INDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PARTS NUMBERS APPEAR AS SHOWN IN THIS MANUAL.
MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

ONKYO®
AUDIO COMPONENTS

SPECIFICATIONS

AMPLIFIER SECTION

Power Output:	60 watts per channel, min. RMS, at 8 ohms, both channels driven, from 20Hz to 20kHz, with no more than 0.04% THD.
Musical Power Output:	2 x 145 watts at 4 ohms, 1kHz (DIN) 2 x 85 watts at 8 ohms, 1kHz (DIN)
Continuous Power Output:	2 x 90 watts at 4 ohms, 1kHz (DIN) 2 x 70 watts at 8 ohms, 1kHz (DIN)
Total Harmonic Distortion:	0.04% at rated power 0.04% at 1 watt output
IM Distortion:	0.04% at rated power 0.04% at 1 watt output
Damping Factor:	35 at 8 ohms
Frequency Response:	20 – 30,000 Hz ± 1dB
RIAA Deviation:	20 – 20,000 Hz ± 0.8dB
Sensitivity and Impedance:	Phono: 2.5mV/50 kohms CD/Tape Play: 150mV/50 kohms Tape Rec: 150mV/3.5 kohms (phono)
Phono Overload:	120mV RMS at 1kHz, 0.04% THD
Signal-to-Noise Ratio:	Phono: 85dB (at 10mV input, A weighted) 75dB (IHF A-202) CD/Tape: 95dB (A weighted) 80dB (IHF A-202)
Tone Controls:	Bass: ± 10dB at 100Hz Treble: ± 10dB at 10kHz
Muting:	–20dB

TUNER SECTION

	OTHER MODELS	120V MODELS
FM:		
Tuning Range:	87.5 – 108.0MHz (50kHz steps)	87.9 – 107.9MHz (200kHz steps)
Usable Sensitivity:	Mono: 11.2dBf, 1.0µV, 75 ohms 0.9µV (S/N 26dB, 40kHz Devi.) 75 ohms DIN	Mono: 10.8dBf, 1.9µV
	Stereo: 18.0dBf, 2.2µV, 75 ohms 23µV (S/N 46dB, 40kHz Devi.) 75 ohms DIN	Stereo: 17.2dBf, 4.0µV
50dB Quieting Sensitivity:	Mono: 18.0dBf, 2.2µV, 75 ohms Stereo: 37.2dBf, 20µV, 75 ohms	Mono: 17.2dBf, 4.0µV Stereo: 37.2dBf, 40µV
Capture Ratio:	1.5dB	1.5dB
Image Rejection Ratio:	85dB	40dB
IF Rejection Ratio:	90dB	90dB
Signal-to-Noise Ratio:	Mono: 73dB Stereo: 67dB	Mono: 73dB Stereo: 67dB
Selectivity	50dB DIN (±300kHz, 40kHz dev.)	55dB (ACA)
AM Suppression Ratio:	50dB	50dB
Harmonic Distortion:	Mono: 0.15% Stereo: 0.25%	Mono: 0.15% Stereo: 0.25%
Frequency Response:	30 – 15,000Hz ± 1.5dB	30 – 15,000Hz ± 1.5dB
Stereo Separation:	45dB at 1kHz 30dB at 100 – 10,000Hz	45dB at 1kHz / 30dB at 100 – 10,000Hz
AM:		
Tuning Range:	522 – 1611kHz (9kHz steps)	530–1610 kHz (10kHz steps)
Usable Sensitivity:	30µV	30µV
Image Rejection Ratio:	40dB	40dB
IF Rejection Ratio:	40dB	40dB
Signal-to-Noise Ratio:	40dB	40dB
Harmonic Distortion:	0.7%	0.7%

GENERAL

Dimensions (W x H x D):	435 x 110 x 345 mm 17-1/8"x 4-3/8"x 13-1/2"
Weight:	8.5 kg.,18.8 lbs

Specifications and features are subject to change without notice.

Remote Control transmitter RC-84S, RC-82S

Transmitter:	Infrared
Signal range:	Approx. 5 meters (16ft. 4")
Power supply:	Two "AA" batteries (1.5V x 2)
Dimenstions (W x H x D):	64 x 18 x 149 mm
	2-1/2" x 11/16" x 5-7/8"
Weight:	110 grams 3.9 oz. (including batteries)

SERVICE PROCEDURES

1. Replacing the fuses

For continued protection against fire hazard,replace only with same type and same rating fuse.

D (120V) model

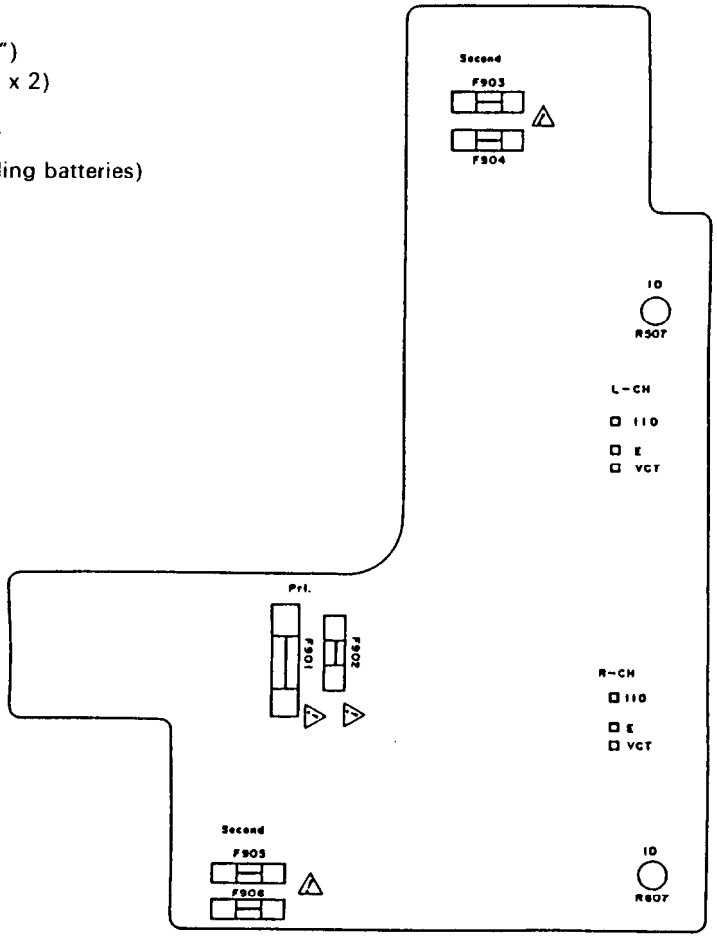
Circuit no.	Part no.	Description
F901	252050	5A (ST-6), Primary

G (220V) and Q (240V) models

Circuit no.	Part no.	Description
F902	252075	2.5A-SE-EAK, Primary
F903, F904	252078	5A-SE-EAK, Secondary
F905, F906	252070	1A-SE-EAK, Secondary

W (Worldwide) model

Circuit no.	Part no.	Description
F901	252050	5A (ST-6), Primary
F902	252075	2.5A-SE-EAK, Primary



2. Change of FM/AM band step.

– 120V model –

This model is not located the band selector switch.
If the FM band step is changed from 200kHz to 50kHz, add two diodes (1SS133) to D709 and D710 on the display PC board.
If the AM band step is changed from 10kHz to 9kHz, add a diode (1SS133) to D711 on the display PC board.

–220V model –

This model is not located the band selector switch.
If the FM band step is changed from 50kHz to 200kHz, remove two diodes (1SS133) to D709 and D710 on the display PC board.
If the AM band step is changed from 9kHz to 10kHz, remove a diode (1SS133) to D711 on the display PC board.

– Worldwide model –

Worldwide models are equipped with a step band selector switch. This switch is located on the back panel. This switch is set to 50kHz (FM) and 9kHz (AM) at the factory, but may have to be reset to 100kHz and 10kHz depending on the area where the unit is used.

	De-emphasis	FM step	AM step
Europe:	50μsec	50kHz	9kHz
U.S.A.:	75μsec	100kHz	10kHz

3. Memory preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory,the power switch must be turned on and off a few times each month to keep the back-up system operative.
The period of time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit.
On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorter when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

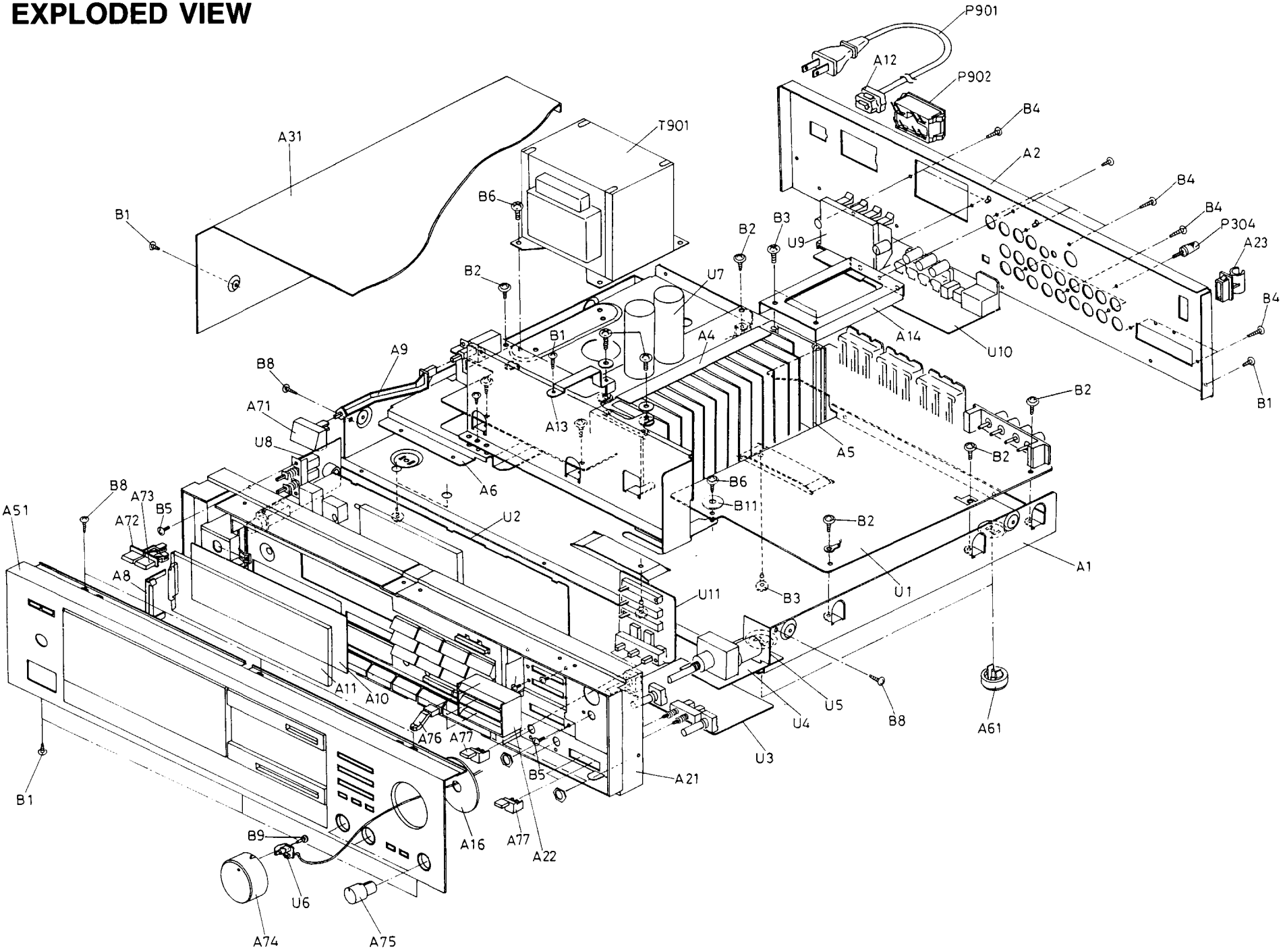
4. Safety-check out

(Only U.S.A. model)
After correcting the original service problem,perform the following safety check before releasing the set to the customer.
Connect the insulating-resistance tester between the plug of power suuply cord and terminal GND on the back panel.
Specifications: 3.3Mohm ±10% at 500V.

5. Change of voltage

Worldwide models are equipped with a voltage selector to conform with local power supplies. This switch is located on the back panel. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on.
This swith is set to 220V at the factory. Voltage is changed by sliding the groove in the switch with the screwdriver to the right or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on.

EXPLODED VIEW



PARTS LIST

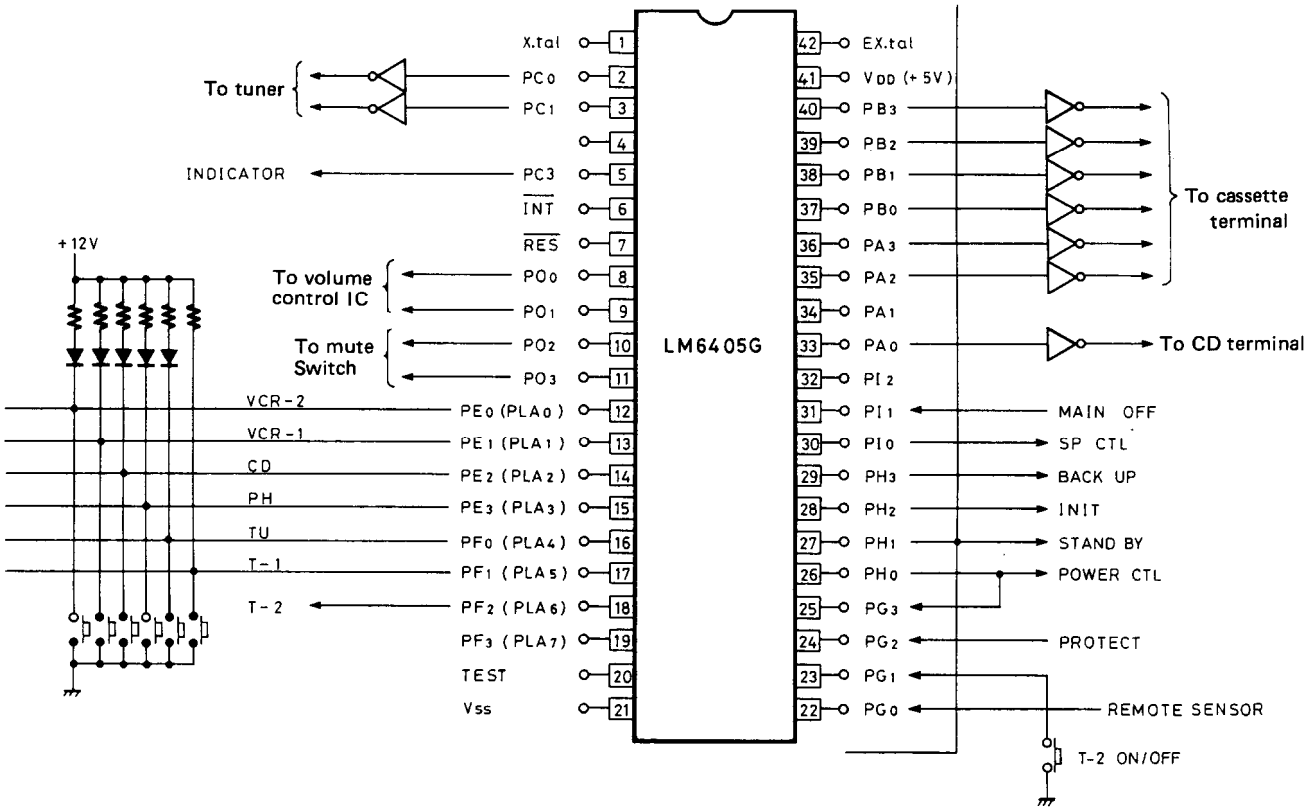
REF.NO.	PART NO.	DESCRIPTION
A1	27100121A	Chassis
A2	27120945	Back panel <D>
	27120946A	Back panel <G>
	27120948	Back panel <W>
	27120949	Back panel <PX>
	27121020	Back panel <Q>
A3	27130470	Bracket, shielded
A4	27130468A	Bracket, radiator
A5	27160202	Radiator
A6	27130469A	Bracket, power transformer
A8	27190359A	Holder, dial plate
A9	27273030C	Joint L
A10	28133177A	Back plate
A11	28130243A	Dial plate
A12	27300750	⚠ Strainrelief
A13	27141122	Bracket F
A14	27141123A	Bracket R
A15	27270216	Spacer
A16	28140220	Cushion
A21	27110339B	Front bracket ass'y
A22	27190526	Holder, slider
A23	27190105	Holder, antenna
A31	28184357A	Top cover
A51	1A012121	Front panel ass'y
A61	27175130	Leg
A71	28322795A	Knob, Power
A72	28322304-1	Knob, Speaker A
A73	28322305-1	Knob, Speaker B
A74	28322923B	Knob, Volume
A75	28322929	Knob, Tone
A76	28322925	Knob, Slide
A77	28322927A	Knob, Push
B1	834430068	3TTS+6B(BC), Tapping screw
B2	831130088	3TTW+8B, Tapping screw
B3	838440089	4TTB+8C(BC), Tapping screw
B4	834430108	3TTS+10B(BC), Tapping screw
B5	82143006	3P+6FN(BC), Pan head screw
B6	830440089	4TTC+8C(BC), Tapping screw
B7	82142004	2P+4F(BC), Pan head screw
B8	833430080	3TTP+8P(BC), Tapping screw
B9	880011	Rivet
B10	830440109	4TTC+10C(BC), Tapping screw
B11	870060	Flat washer
F901	252050	⚠ 5A(ST-6), Fuse, primary <D/W/PX>
F902	252075	⚠ 2.5A-SE-EAK, Fuse, primary <G/W/PX/Q>
F903, F904	252078	⚠ 5A-SE-EAK, Fuse, secondary <G/Q>
F905, F906	252070	⚠ 1A-SE-EAK, Fuse, secondary <G/Q>
P304	25060044	Terminal GND
P901	253123, 253136 or 253140	⚠ AS-UC-6#18, Power supply cord <D/PX>
	253128B or 253130A	⚠ AS-CEE, Power supply cord <G/W>
	253118	⚠ AS-SAA, Power supply cord <Q>
P902	25050278	⚠ NSCT-4P106T, AC outlet <D/PX>
	25050337	⚠ NSCT-2P164, AC outlet <G>
	28330072	⚠ Cap, AC outlet <PX>
Q508, Q608	2201703, 2201704 or 2201706	2SC3855(O), 2SC3855(Y) or 2SC3855(P), Transistor
Q509, Q609	2201693, 2201694 or 2201696	2SA1491(O), 2SA1491(Y) or 2SA1491(P), Transistor
Q902, Q905	2201754, 2201755, 2201404 or 2201405	2SD1913(R), 2SD1913(S), 2SD1406(Y) or 2SD1406(GR), Transistor
S903	25065123	⚠ NPS-1258P, Voltage selector switch <W/PX>
T901	2300194	⚠ NPT-954D, Power transformer <D>
	2300195	⚠ NPT-954G, Power transformer <G>
	2300196	⚠ NPT-954DG, Power transformer <W/PX>
	2300197	⚠ NPT-954Q, Power transformer <Q>
U1	1A013569-1	NAAR-2869-1, FM/AM tuner pc board ass'y <D>
	1A013569-1A	NAAR-2869-1A, FM/AM tuner pc board ass'y <G/Q>
	1A012569-1B	NAAR-2869-1B, FM/AM tuner pc board ass'y <W/PX>
U2	1A013570-1	NADIS-2870-1, Display pc board ass'y <D>
	1A013570-1A	NADIS-2870-1A, Display pc board ass'y <G/Q>
	1A012570-1B	NADIS-2870-1B, Display pc board ass'y <W/PX>
U3	1A013571-1	NAAF-2871-1, Preamplifier pc board ass'y <D>
	1A013571-1A	NAAF-2871-1A, Preamplifier pc board ass'y <G/W/PX/Q>
U4	1A013572-1	NAAF-2872-1, Volume pc board ass'y
U5	1A013573-1	NAETC-2873-1, Volume motor pc board ass'y
U6	1A013574-1	NADIS-2874-1, Volume indicator pc board ass'y
U7	1A013575-1	NAPS-2875-1, Power amplifier and power supply pc board ass'y <D>
	1A013575-1A	NAPS-2875-1A, Power amplifier and power supply pc board ass'y <G>
	1A012575-1B	NAPS-2875-1B, Power amplifier and power supply pc board ass'y <W>
	1A012575-1C	NAPS-2875-1C, Power amplifier and power supply pc board ass'y <PX>
	1A012575-1D	NAPS-2875-1D, Power amplifier and power supply pc board ass'y <Q>
U8	1A013576-1	NASW-2876-1, Speaker switch pc board ass'y <D/W/PX>
	1A013576-1A	NASW-2876-1A, Speaker switch pc board ass'y <G/Q>
U9	1A013577-1	NAETC-2877-1, Speaker terminal pc board ass'y <D/W/PX>
	1A013577-1A	NAETC-2877-1A, Speaker terminal pc board ass'y <G/Q>
U10	1A013578-1	NAETC-2878-1, Remote control terminal pc board ass'y <D/W/PX>
	1A008578-2	NAETC-2878-2, Remote control terminal pc board ass'y <G/Q>
U11	1A013579-1	NAAF-2879-1, Switch pc board ass'y

NOTE: <D>: Only 120V model
<G>: Only 220V model
<Q>: Only 240V model
<W>: Only Worldwide model
<PX>: Only PX model

NOTE: THE COMPONENT IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CIRCUIT DESCRIPTION

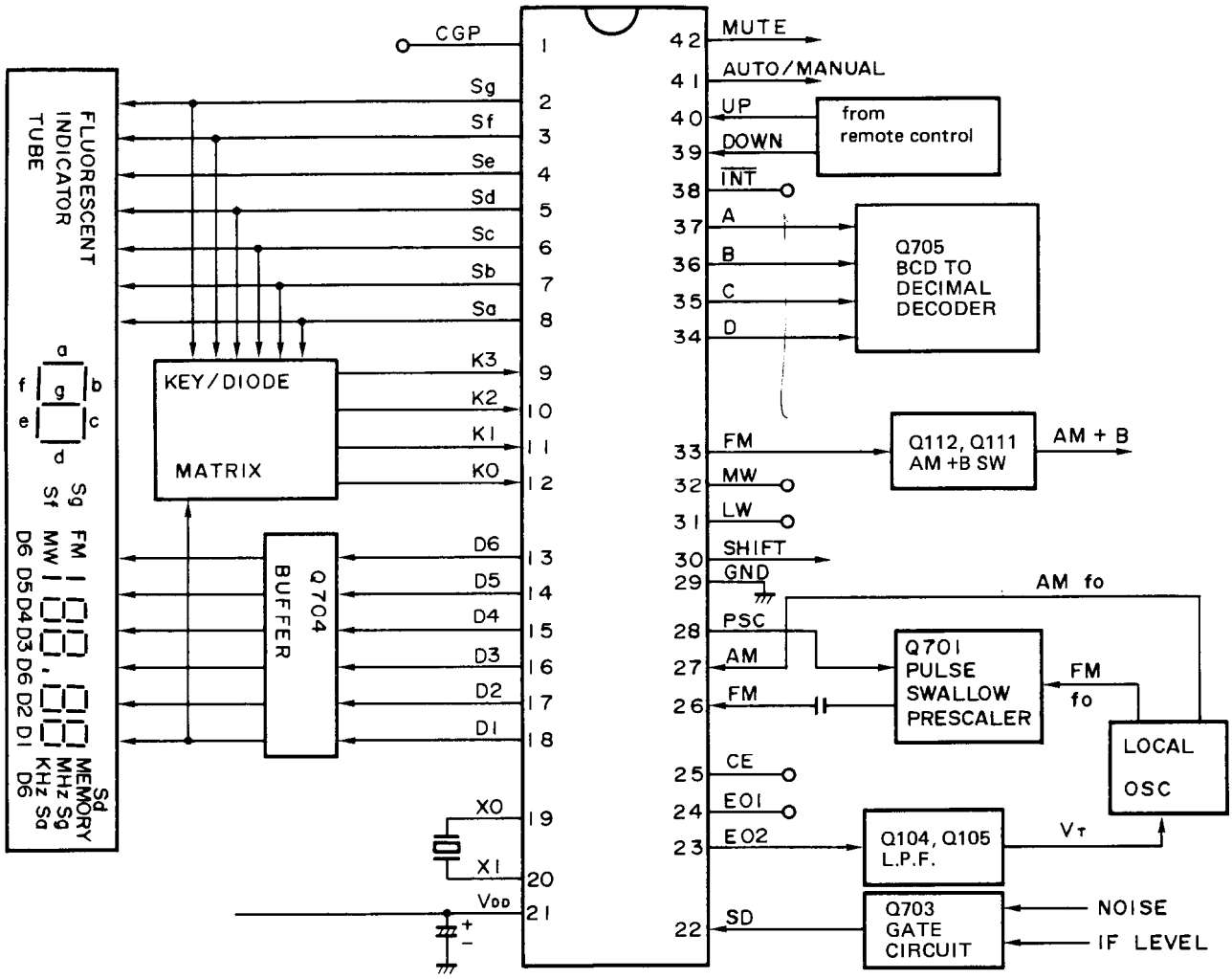
1: Remote control decoder (LM6405G)



Pin No.	Code	Description
1	X'tal	Ceramic resonator
2	ST. UP	Preset STATION UP signal output terminal Output "L" during pushing of remote control STATION UP KEY
3	ST. DN	Preset STATION DOWN signal output terminal Output "L" during pushing of remote control STATION DOWN KEY
5	INDI	Terminal for indicating Light received by remote control; during light reception, "L" is output
7	RES	Reset terminal
8	VOL. UP	VOLUME UP signal output terminal Outputs "L" during pushing of VOLUME UP KEY
9	VOL. DN	VOLUME DOWN signal output terminal Output "L" during pushing of VOLUME DOWN KEY
10	MUTING	MUTING ON/OFF output terminal Switching of "L" ↔ "H" (ON = "H") by means of remote control AUDIO MUTING KEY

Pin No.	Code	Description
11	MUT-2	Muting signal output terminal for TAPE-2 change-over "H" during 200mS change-over time to TAPE-2
12	VCR-2	Selector signal output terminal for VCR-2 change-over "L" during 200mS after pushing remote control VCR-2 KEY
13	VCR-1	Selector signal output terminal for VCR-1 change-over "L" during 200mS after pushing remote control VCR-1 KEY
14	CD	Selector CD change-over signal output terminal "L" during 200mS after pushing remote control CD KEY
15	PH	Selector PHONO change-over signal output terminal "L" during 200mS after pushing remote control PHONO KEY
16	TU	Selector signal output terminal for TUNER change-over "L" during 200mS after pushing remote control TUNER KEY
17	T-1	Selector signal output terminal for TAPE-1 change-over "L" during 200mS after pushing remote control TAPE-1 KEY
18	T-2	Selector signal output terminal for TAPE-1 change-over Switching of "H" ↔ "L" by means of remote control TAPE-2 KEY
21	GND	GND terminal
22	REM IN	Remote control signal input terminal
23	T-2 CTL	TAPE-2 ON/OFF control input terminal T-2 output is changed-over with "L" input
24	PROTECT	Protection function input terminal; with "H" input, output SP CTL "H"
25	CONT IN	Power source condition input terminal; connects to POWER output; POWER ON with "H"
26	POWER	Power source control output terminal Switching of "H" ↔ "L" (ON = "H")
27	STBY	Terminal for indication during STANDBY; POWER reversing output
28	INIT	Output terminal for start of selector "L" during 300mS when power source is ON
29	B. UP	Output terminal for back up during STANDBY
30	SP CTL	Speaker control output terminal ("L" = speaker output ON)
31	M. OFF	Main power source OFF detection terminal
33	CD MODE	Serial signal output terminal for CD control use
35	REW	Cassette deck control signal output terminal "H" during 200mS after pushing remote control REW KEY
36	FF	Cassette deck control signal output terminal "H" during 200mS after pushing remote control FF KEY
37	REC	Cassette deck control signal output terminal "H" during 200mS after pushing remote control REC KEY
38	STOP	Cassette deck control signal output terminal "H" during pushing of remote control STOP KEY
39	PAUSE	Cassette deck control signal output terminal "H" during 200mS after pushing remote control PAUSE KEY
40	PLAY	Cassette deck control signal output terminal "H" during 200mS after pushing remote control PLAY KEY
41	V_{DD}	Power source terminal
42	Extal	Ceramic resonator connection terminal

2. Controller connection



Pin No.	Symbol	Terminal	Description
1	CGP		Output terminal for sound "PEE".
2 – 8	Sa – Sg	Segment outputs	Display tube signal terminal output and key return signal source terminals; active high. Since these terminals can handle 30V, they are connected directly to the segment terminals of the fluorescent display tube.
9 – 12	K0 – K3	Key return signal inputs	Terminals for input of the key return signals from external matrix circuit.
13 – 18	D1 – D6	Digit outputs	Display tube digit output signal terminals; active low. D1 is used the key return signal source to diode matrix.
19, 20	X1, X2	X'tal	Connect to the 4.5MHz crystal oscillator.
21	V_{DD}	Power source input	Device power source terminal; supplies 5V during normal operation and 2.5V from the super capacitor C714 for memory preservation.

Pin No.	Symbol	Terminal	Description
22	SD	Station detector signal input	Input terminal for detecting whether or not a broadcast signal is being received during auto-tuning. Stopped by the high level.
23, 24	E01, E02	Error outputs	Charge pump output of the phase detector with constitutes the PLL. High level is output when the divided oscillation frequency is higher than the reference frequency. In the opposite case, low level is output. Floating occures when the frequencies match. The output is applied to the variable capacitor diode in the front end through the low pass filter Q104 and Q105. The output from both terminals is same, but only E02 is used.
25	CE	Chip enable	Device selection signal input terminal. High level ... Normal operation Low level ... Memory preservation
26	FM	FM local oscillator signal input	Input terminal for FM local oscillator is divided by 1/16 or 1/17 by prescaler Q701.
27	AM	AM local oscillator signal input	Terminal for input of the AM local oscillator signal.
28	PSC	Pulse swallow control output	This terminal outputs a signal that switches the prescaler division ratio of Q701 to 1/16 or 1/17 when the pulse swallow method is used for division. (FM only)
29	GND	Ground	
30	SHIFT	Preset reverse indication output	Terminal for indication output whether M1 – M8 or M9 – M16 the preset key. M1 – M8: Low level M9 – M16: High level
31	LW	Band switching signal outputs	Terminals for signal output switching of each band. High level is output from terminal of FM (pin no. 33) and low level is output from other terminals (pin no. 31 & 32) during FM reception.
32	MW		
33	FM		
34 35 36 37	A B C D	Preset station indication outputs	Terminals for BCD code output of preset station indicator. M1 M2 M3 M4 M5 M6 M7 M8 A 1 0 1 0 1 0 1 0 B 0 1 1 0 0 1 1 0 C 0 0 0 1 1 1 1 0 D 0 0 0 0 0 0 0 1
38	INT		Not used.
39	MEMORY	Memory down input	Terminal for down signal input of preset memory. Active low.
40	MEMORY UP	Memory up input	Terminal for up signal input of preset memory. Active low.
41	AUTO/ MANUAL	Auto/Manual indication output	Terminal for indication output whether or auto the tuning mode. This terminal becomes high during auto mode and low during manual mode.
42	MUTE	Muting output	Output terminal which mutes the shock noise occurring when the PLL is released; active high. The muting signal is output as shown below. UP/DOWN of manual/auto mode, preset memory is recalled, band switching and preset scan.

Control key and diode matrix connections

	K3(9)	K2(10)	K1(11)	K0(12)
Sg(2)	M4/M14	M3/M13	M2/M12	M1/M11
Sf(3)	M8/M18	M7/M17	M6/M16	M5/M15
Se(4)		PRESET SCAN	M10/M20	M3/M19
Sd(5)	SHIFT	LW	MW	FM
Sc(6)	AUTO MANUAL	MEMORY	DOWN	UP
Sb(7)	HI-BLEND	DISPLAY	PROGRAM	WIDE/ NARROW
Sa(8)	*10/9kHz	*LW2	*LW1	*AM
D1(18)	*BAND 0	*BAND 1	*10/8	STATIC/ DYNA

*Diode matrix table 1

BAND0, BAND1 ····· FM band settings. See table 2.
10/9kHz ····· AM band settings. See table 3.

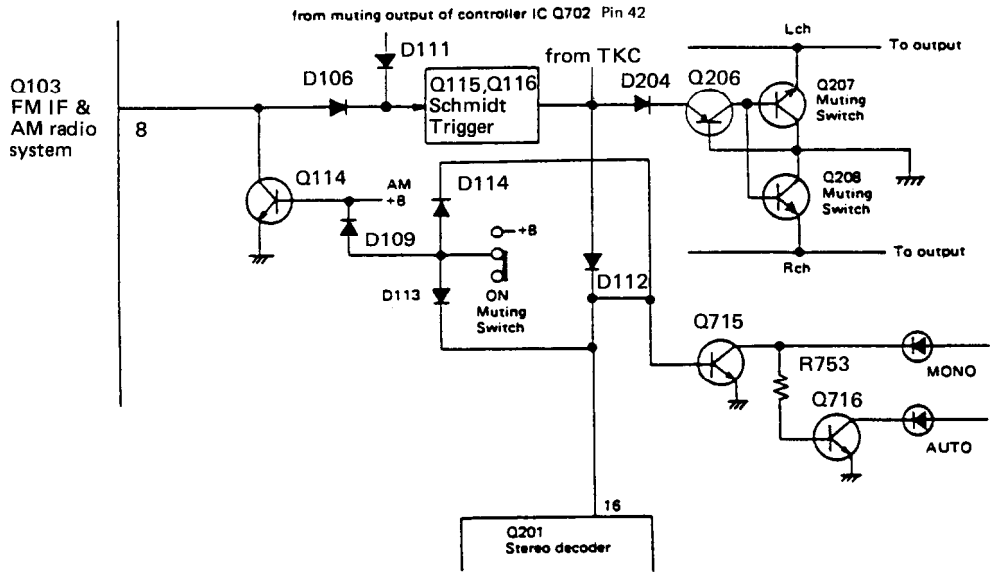
BAND0	BAND1	REGION	FREQUENCY RANGE	CHANNEL SPACE
D710	D709			
0	0	U.S.A.	87.9-107.9MHz	200kHz
1	1	Europe	87.50-108.00MHz	50kHz

0: Open 1: Connect the diode (1SS133). table 2

AM	10kHz/9kHz	FREQUENCY RANGE	CHANNEL SPACE
	D711		
0	0	530-1620kHz	10kHz
0	1	522-1611kHz	9kHz
1	0	531-1602kHz	9kHz

0: Open 1: Connect the diode (1SS133). table 3

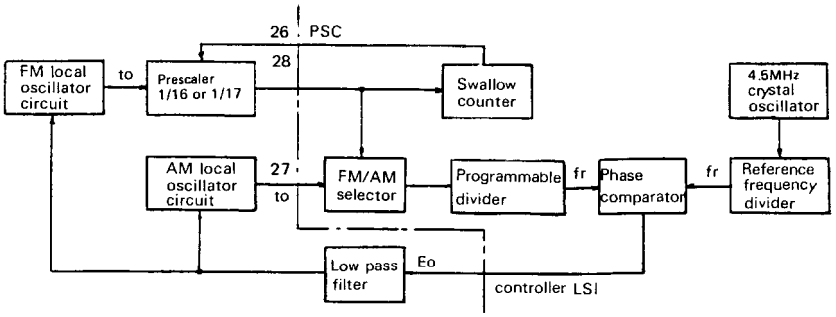
3. Muting circuit



The muting circuit operates in the following cases.

1. While pin 42 of controller IC outputs the high level.
   Q207 and Q208 are turned on and muting is closed in the following cases: (1) While the manual UP/DOWN switch is being held down. (2) When a station in the memory is recalled. and (3) While a radio station is being received using auto search tuning.
2. When an FM station is not being received (and the muting switch is on).
   The IF level in the FM IF system (set at R101 so muting is opened at 17.2dBf and zero-cross detection circuit (tuning point 55kHz (100kHz step): 30kHz (50kHz step) -are output at pin 8 through the AND circuit. When a station is turned, the output goes to the low level.
   When output goes to the low level, Q115 turned off, Q116 is turned on and Q207 and Q208 are turned off, so muting is opened. At the same, pin 16 of stereo decoder Q201 goes to the low level. so the VCO oscillator starts.

4. PLL tuned circuit



A block diagram of the tuned of the PLL is shown in the above diagram.

Operation during AM reception

The reception frequency is applied to the programmable divider where it is divided to 1/N and output as fv. This is applied to the phase comparator where it is comparated with frequency reference fr(9kHz for G/W models and 10kHz for D model). If fr and fv differ, Eo equal to the difference in frequency is output. Since error output Eo is a pulse waveform, it is passed through the low pass filter to change it into DC voltage Vd, which is applied to the variable capacitor diode in the front end to change the reception frequency. This continues until fv and fr are the same and Eo=0.

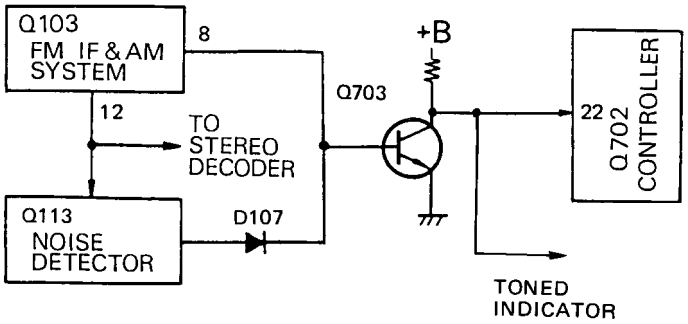
Operation during FM reception

The pulse swallow method is used in the prescaler of this unit. In this type of prescaler, a supplementary number (changed accordimg to the program code input) and the divided reception frequency from the prescaler are combined in the control counter and the prescaler's division factor is switched 1/16 or 1/17 according to external control (1/16 when the PSC terminal is "H" and 1/17 when it is "L").

The station oscillator frequency is applied to the programmable divider, but the programmable divider has an upper frequency limit of only 30MHz, so the pulse swallow-type prescaler, which can be used up to 150MHz, is inserted for division to 1/Np;

The signal is applied to the programmable divider and divided to 1/N. The result is compared with a 25kHz frequency reference in the phase detector and error is output as Eo until a match is obtained as in AM operation.

5. Auto search tuning circuit

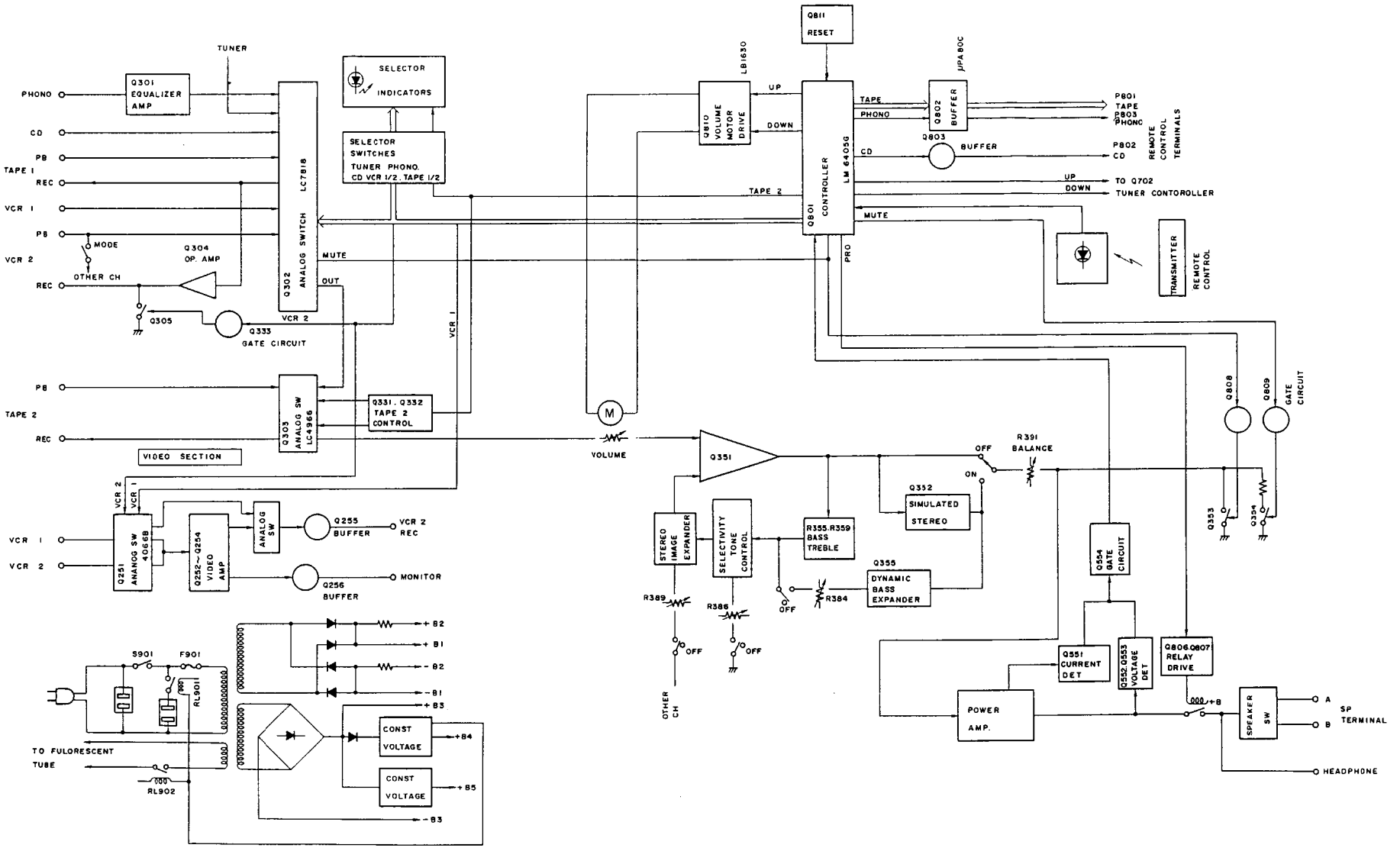


During FM reception, this is operated by the IF level detection and zero cross detection circuits included in the FM IF & AM system IC of Q103 and by the noise component detection circuit of Q113. When a station is tuned, the output of all outputs go to the low level so Q703 goes from on to off, causing pin 22 of the controller IC to go to the high level to complete auto search tuning.

During AM reception, this is operated by the IF level detection included in the FM IF & AM system IC of Q103. When a station is turned, Q703 goes to off, causing pin 22 of the controller IC to go to the high level to complete auto search tuning.

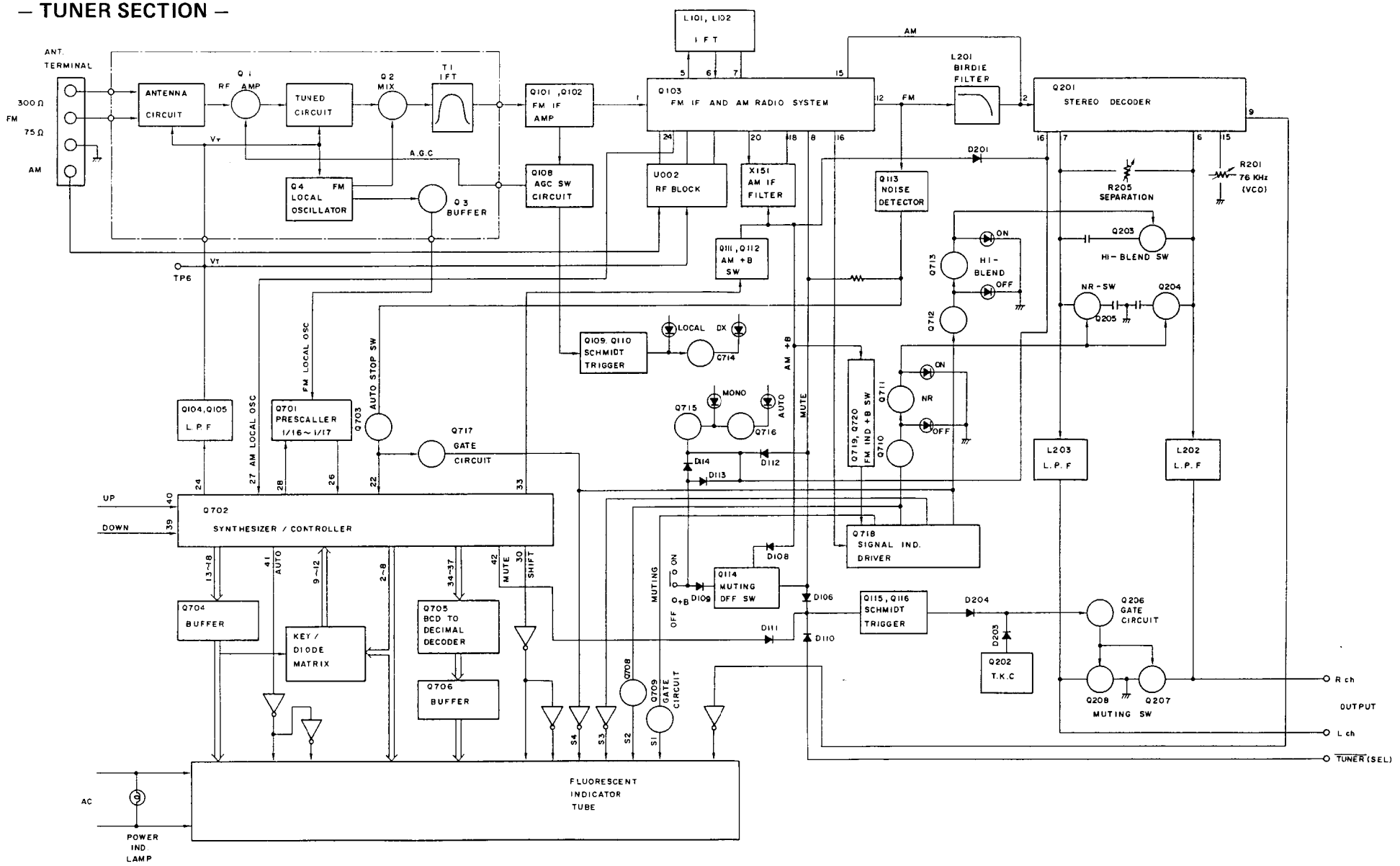
BLOCK DIAGRAM

– AMPLIFIER SECTION –

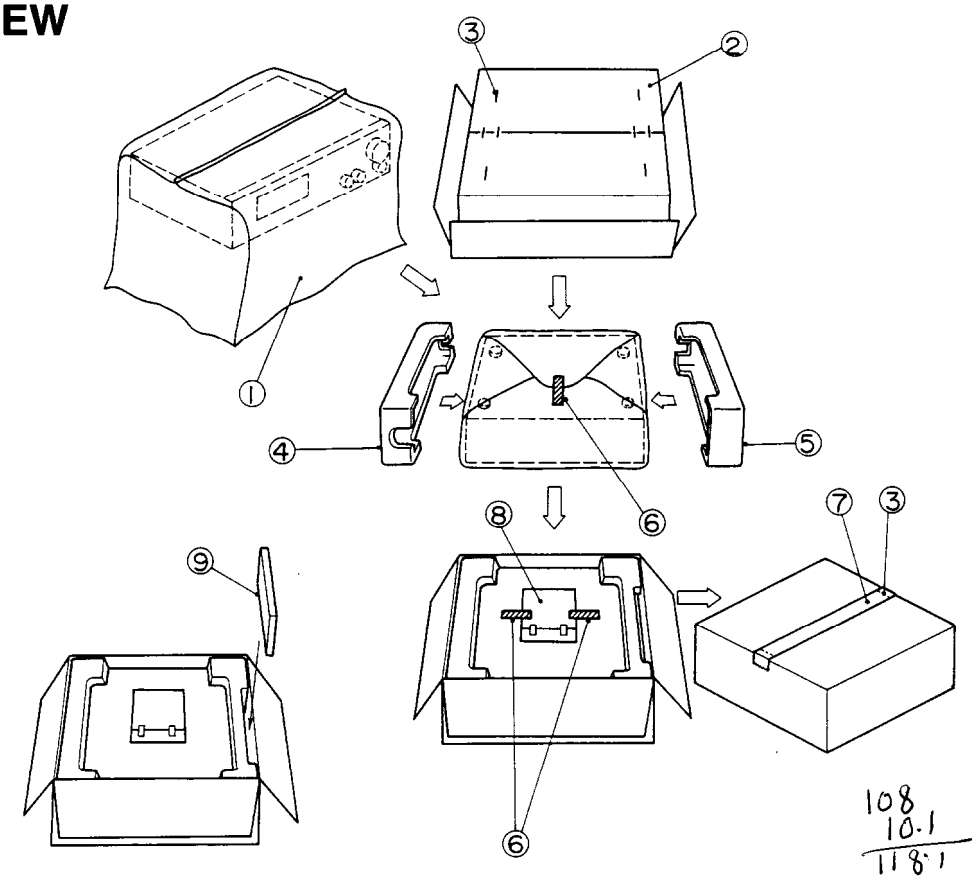


BLOCK DIAGRAM

— TUNER SECTION —



PACKING VIEW



REF. No.	PART NO.	DESCRIPTION
1	29100034	850X650mm, Poly-vinyl bag
	29095012-1	800X500mm, Protection sheet
2	29051462	Master carton box (TX-84)
	29051464	Master carton box (TX-84M)
3	282301	Sealing hook
4	29091158A	Pad R
5	29091157	Pad L
6	29110032	Tape
7	260012	Damplon tape
8	Accessary bag ass'y	
	– 120V model –	
	29341113	Instruction manual
	292064B	FM antenna
	232119	NMA-3052, AM loop antenna
	2010140	Connection cord for turntable
	2010141	Connection cord for cassette deck
	2010159	Connection cord for CD player
	3010054	UM-3, Two batteries (TX-84)
	24140005	RC-84S, Remote control transmitter (TX-84)
	29100097	250X350mm, Poly-vinyl bag
	29365019	Warranty card <Only U.S.A. model>
	29358002E	Service station list <Only U.S.A. model>
	– 220V/240V models –	
	29341114	Instruction manual
	292092	FM antenna
	232119	NMA-3052, AM loop antenna
	2010141	Connection cord for cassette deck
	2010159	Connection cord for CD player
	3010054	UM-3, Two batteries
	24140003	RC-82S, Remote control transmitter

REF. No.	PART NO.	DESCRIPTION
	25060088	FM adaptor <Only 240V model>
	29100097	250X350mm, Poly-vinyl bag
	– Worldwide model –	
	29341114	Instruction manual
	292092	FM antenna
	232119	NMA-3052, AM loop antenna
	2010141	Connection cord for cassette deck
	2010159	Connection cord for CD player
	3010054	UM-3, Two batteries
	24140003	RC-82S, Remote control transmitter
	25055018	CV-K-1, Conversion plug
	25060088	FM Adaptor
	29100097	250X350mm, Poly-vinyl bag
	–PX model –	
	29341113	Instruction manual
	292092	FM antenna
	232119	NMA-3052, AM loop antenna
	2010141	Connection cord for cassette deck
	2010159	Connection cord for CD player
	2010140	Connection cord for turntable
	3010054	UM-3, Two batteries
	24140005	RC-84S, Remote control transmitter
	25055251	CV-CP, Conversion plug
	29365021	Warranty card
	29358002E	Service station list
9		Remote control transmitter ass'y (TX-84M) (Refer the service manual of model RC-AV1M)

ADJUSTMENT PROCEDURES

Preparation

- **Input**

FM mono: 1kHz, 75kHz devi., 60dB/μV
FM stereo: 1kHz, L+R 67.5kHz devi.: Pilot signal 19kHz 7.5kHz devi.
AM: 400Hz, 30% mod.,

- **Output**

Connect the non-inductive type resistor of 8 ohms to the speaker terminal A of left and right channels unless otherwise noted.

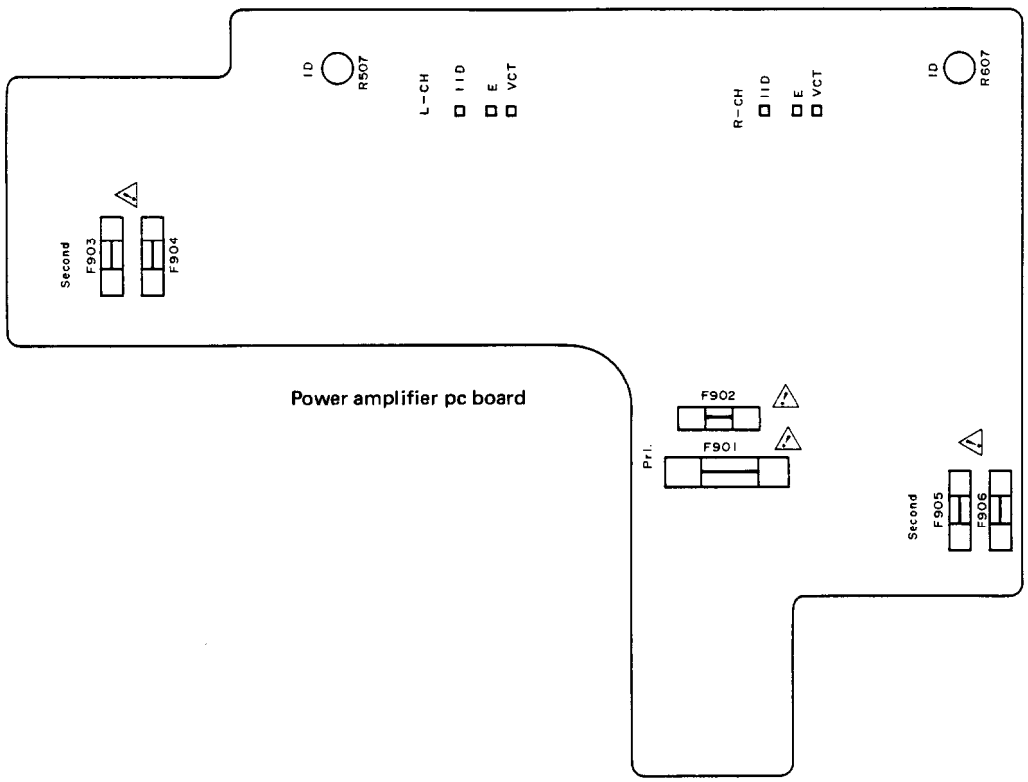
- **Standard knob position**

TAPE MONITOR	SOURCE
VOLUME	Maximum
BASS/TREBLE/BALANCE	Center
MODE	STEREO
SPEAKER	A
SIMULATED STEREO	OFF
DYNAMIC BASS EXPANDER	OFF
STEREO IMAGE EXPANDER	OFF
SELECTIVE TONE CONTROL	OFF

Amplifier section

1. Idling current adjustment

Connect the DC voltmeter to the terminals I ID and V CT on the power amplifier pc board.
Adjust the semi-fixed resistors R507 and R607 so that the indication of voltmeter is 7.5 ± 1.5mV.
Notes: VOLUME ..... Maximum, Open load,
Adjust after switching on for 5 minutes.

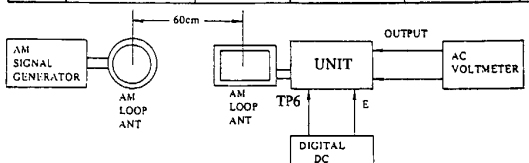


FM section

Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Turning dial setting	Output indicator	Adjustment	Adjust for	Remarks
FM IF	1	Fig. 1	99.1MHz 1kHz, 75kHz devi. 65dBf (60dB)	–	99.1MHz	DC voltmeter	L101	0V	Muting switch: off Repeat the steps 1 and 2 until no further adjustment is necessary
	2	Fig. 1		–	99.1MHz	Distortion analyzer	L102	Minimum	
Stereo indicator level	1	Fig. 3	99.1MHz 17.2dBf (12dB) Ext. modulation	L + R : 1kHz 67.5kHz devi. Pilot signal 19kHz 7.5kHz devi.	99.1MHz	Stereo indicator	R101	Light on	Muting switch: on
	2		99.1MHz 16.2dBf (11dB) Ext. modulation					Light off	
VCO		Fig. 2	99.1MHz 1kHz, 75kHz devi. 65dBf (60dB)	–	99.1MHz	Frequency counter	R201	19kHz ± 10Hz	
Stereo Distortion		Fig. 3	99.1MHz 65dBf (60dB) Ext. modulation	L or Rch. 1kHz	99.1MHz	Distortion analyzer	IF on front end	Minimum	
Stereo Separation	1	Fig. 3	99.1MHz 65dBf (60dB) Ext. modulation	Lch. 1kHz	99.1MHz	Rch. AC voltmeter	R202	Minimum	Maximum and same separation
	2			Rch. 1kHz		Lch. AC voltmeter		Minimum	
Hi-blend level		Fig. 3	99.1MHz 35.2dBf (30dB) 1kHz, 75kHz devi.	–	99.1MHz	Hi-blend indicator	R102	Light off	

AM section

Step	AM SG output	Tuned frequency	Output indicator	Adjustment point	Adjust for	Remarks
1		530kHz [522kHz] ⟨531kHz⟩	Digital DC voltmeter	OSC on RF block	1.4V ± 0.1V	
2		1620kHz (1611kHz)	Digital DC voltmeter		8.0 ± 1.0V	
3	600kHz(603kHz) 400Hz 30% mod. 60dB/m	600kHz (603kHz)	AC voltmeter	RF on RF block	Maximum	Repeat the steps 3 and 4 until no further adjustment is necessary.
4	1400kHz (1404kHz) 400Hz 30% mod. 60dB/m	1400kHz (1404kHz)	AC voltmeter	TC on RF block	Maximum	
5	1000kHz (999kHz) 400Hz 30% mod. 60dB/m	1000kHz (999kHz)	AC voltmeter	X151	Maximum	
6	Same as above	1000kHz (999kHz)	First signal indicator	R151	Light on	



[ ] : G/Q models
⟨ ⟩ : W model
( ) : 9kHz step model

Reference specifications

Tuned voltage
87.9MHz 2.0 ± 0.5V
107.9MHz 7.7 ± 0.5V
(120V model)
87.5MHz 2.0 ± 0.5V
108.0MHz 7.7 ± 0.5V
(Other models)

Auto stop level
AM: Less than 66dB/m
FM: Less than 17dBμ

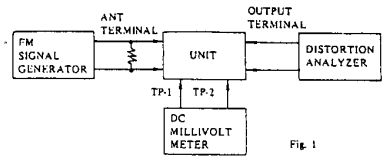


Fig. 1

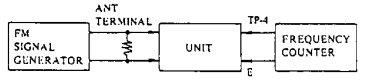


Fig. 2

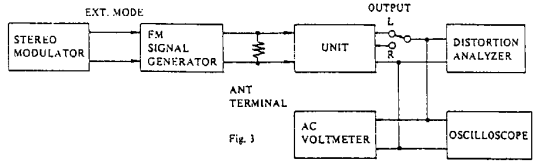
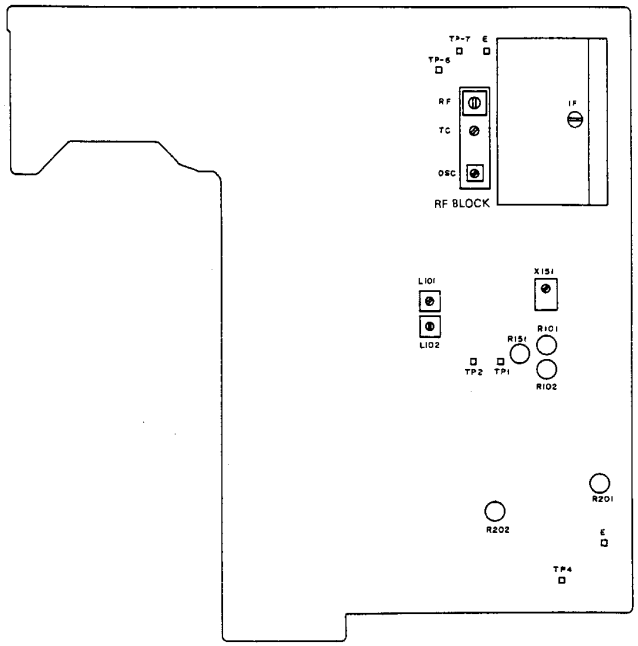


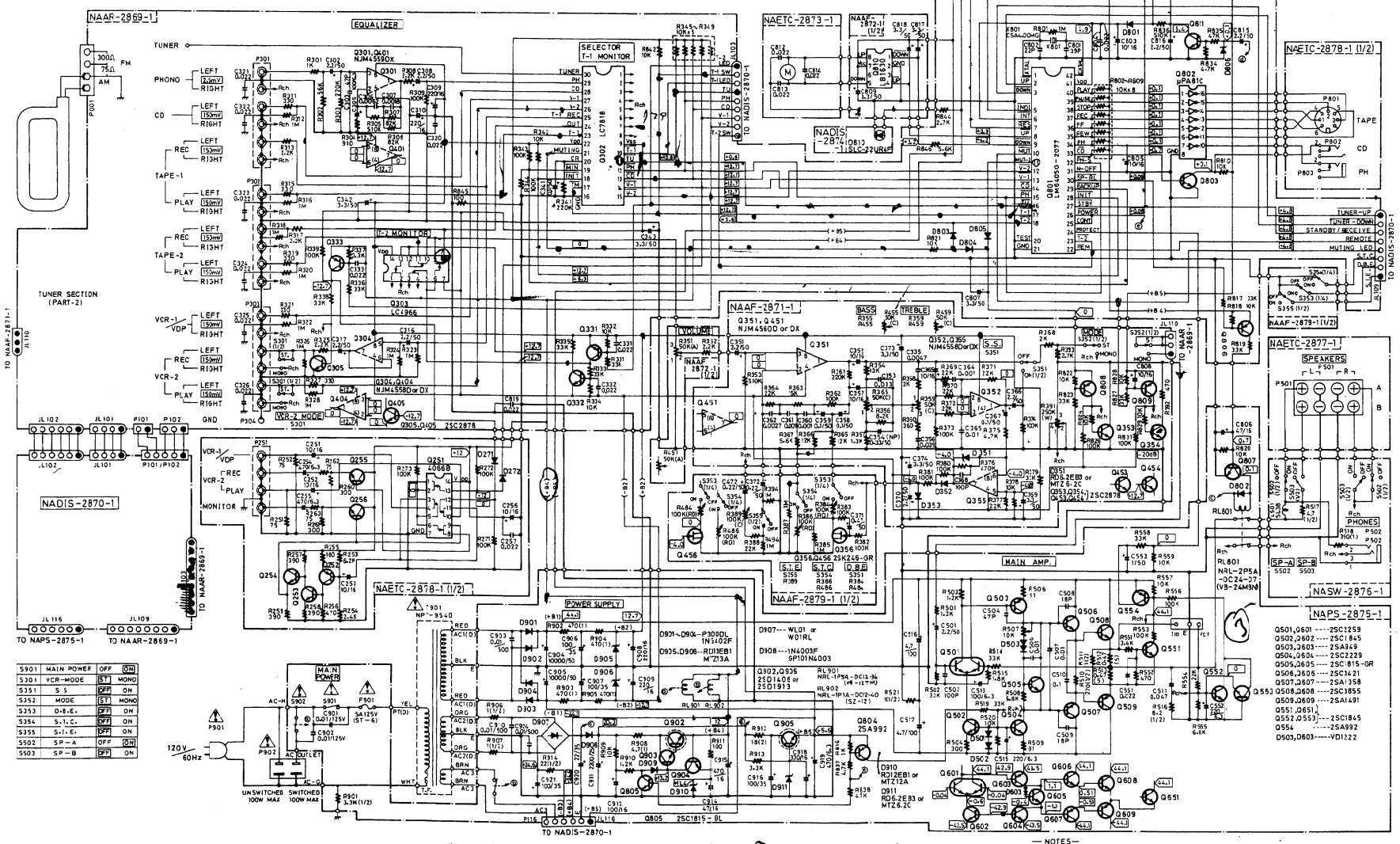
Fig. 3



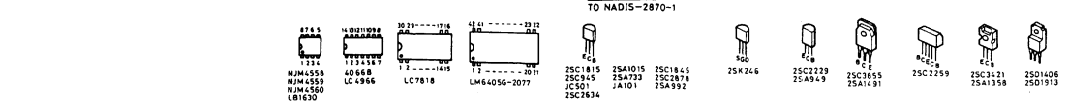
SCHEMATIC DIAGRAM

AMPLIFIER SECTION

120V MODEL



S901	MAIN POWER	OFF	ON
S301	VCR-MODE	ST	MONO
S351	S.S	OFF	ON
S352	MODE	ST	MONO
S353	D-B.E.	OFF	ON
S354	S.T.C.	OFF	ON
S355	S.I.E.	OFF	ON
S502	SP-A	OFF	ON
S503	SP-B	OFF	ON

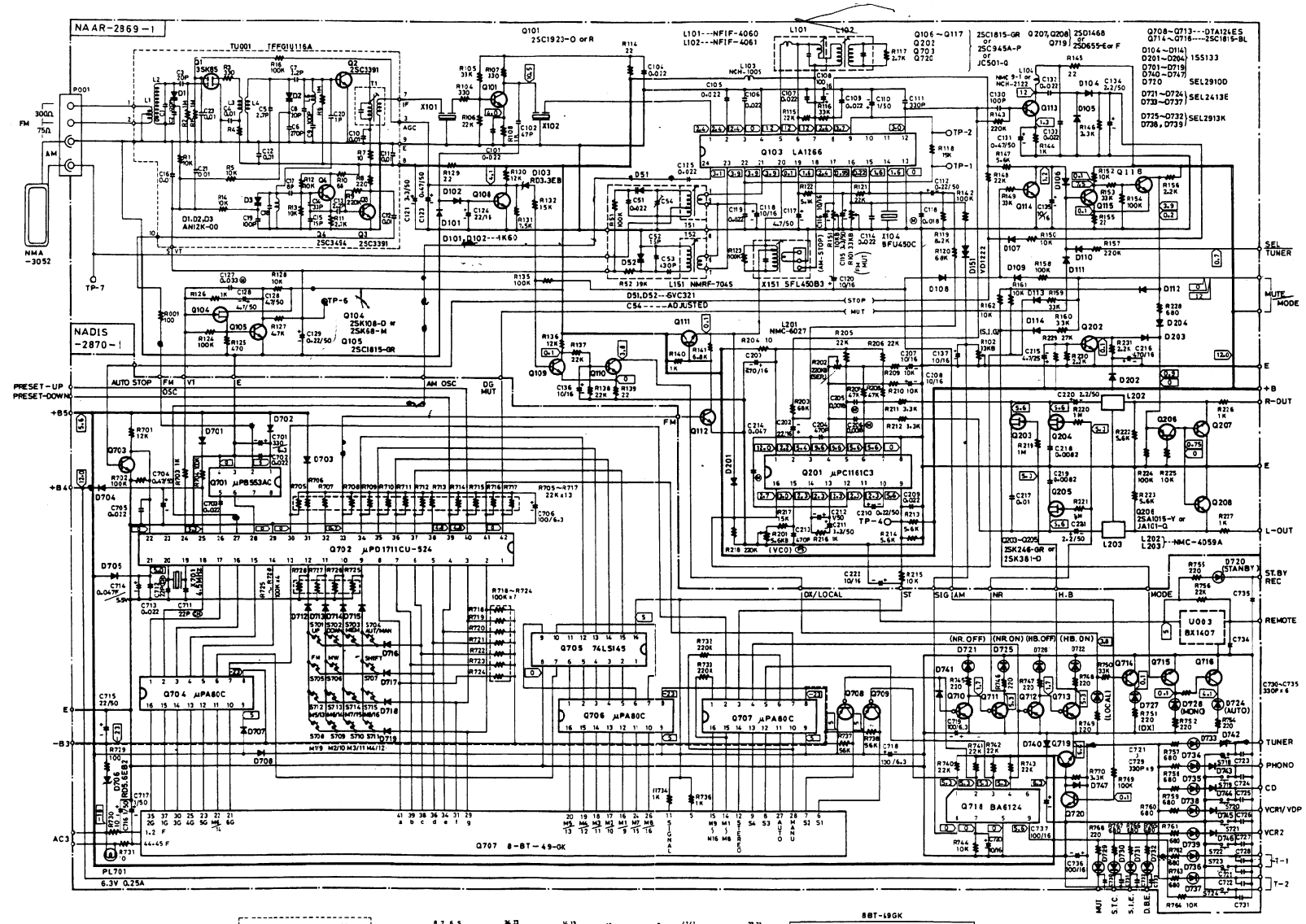


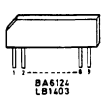
—NOTES—

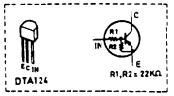
- ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN μF/50WV UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS (◄►) ARE IN μF/WV.
- ALL DIODES ARE 1SS133 UNLESS OTHERWISE NOTED.
- ALL PNP TRANSISTORS ARE 2SA1016-GR or 2SA733-P or JA101-Q UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE 2SC1815-GR or 2SC945A-P or JC501-Q or 2SC1845 UNLESS OTHERWISE NOTED.
- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE(MEASURED WITH V.T.V.M) □V IS DC VOLTAGE(NO INPUT SIGNAL, TUNER POSITION)

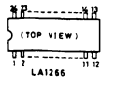
SCHEMATIC DIAGRAM

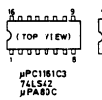
TUNER SECTION
120V MODEL

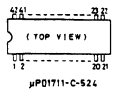


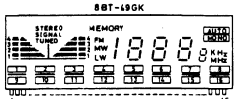










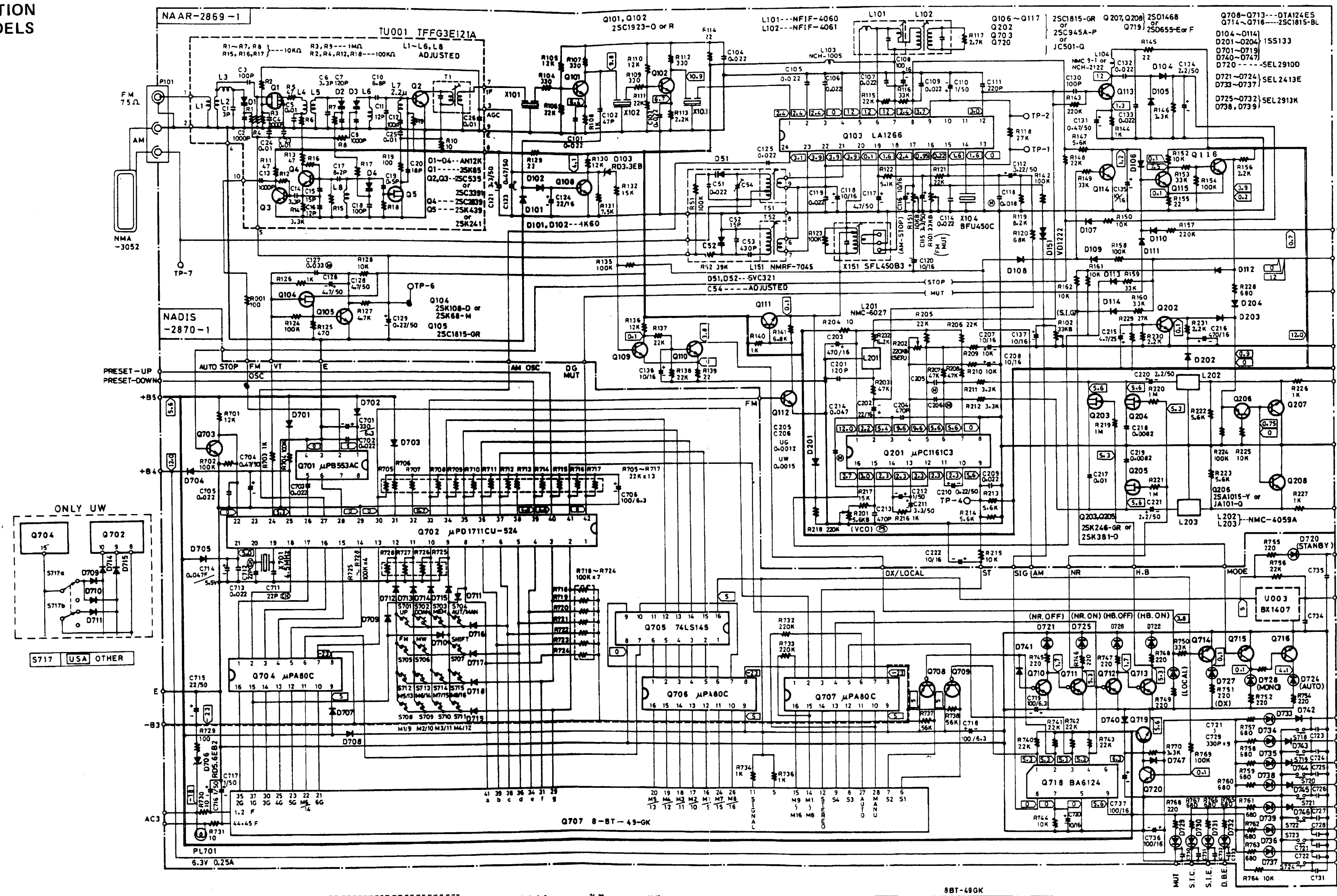


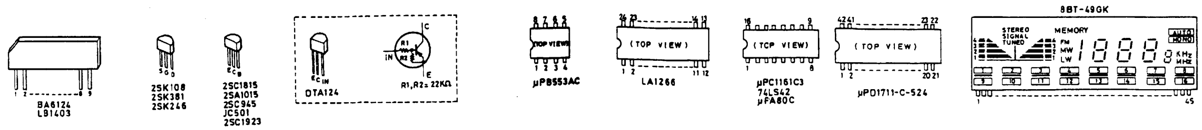
— NOTES —

- ALL RESISTORS ARE IN OHMS 1/4WATTS or 1/8WATTS UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN μF/50WV UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS*10/16ARE IN μF/ WV.
- ALL DIODES ARE 1SS133 UNLESS OTHERWISE NOTED.
- VOLTAGE(MEASURED WITH V.T.V.M)<3V IS DC VOLTAGE.(NO INPUT SIGNAL)
- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

SCHEMATIC DIAGRAM

TUNER SECTION
OTHER MODELS





— NOTES —
- ALL RESISTORS ARE IN OHMS 1/4WATTS or 1/6WATTS UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN μF/50WV UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS(⊣⊢)ARE IN μF/WV.
- ALL DIODES ARE 1SS133 UNLESS OTHERWISE NOTED.
- VOLTAGE(MEASURED WISH V.T.V.M)▭V IS DC VOLTAGE.(NO INPUT SIGNAL)
- THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

ONKYO CORPORATION

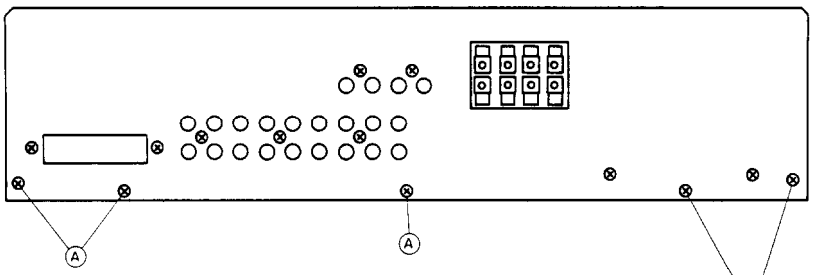
DISASSEMBLING PROCEDURES

1. Top cover
Remove a screw holding the top cover and the back panel.
Remove the four screws holding the back panel and the chassis.

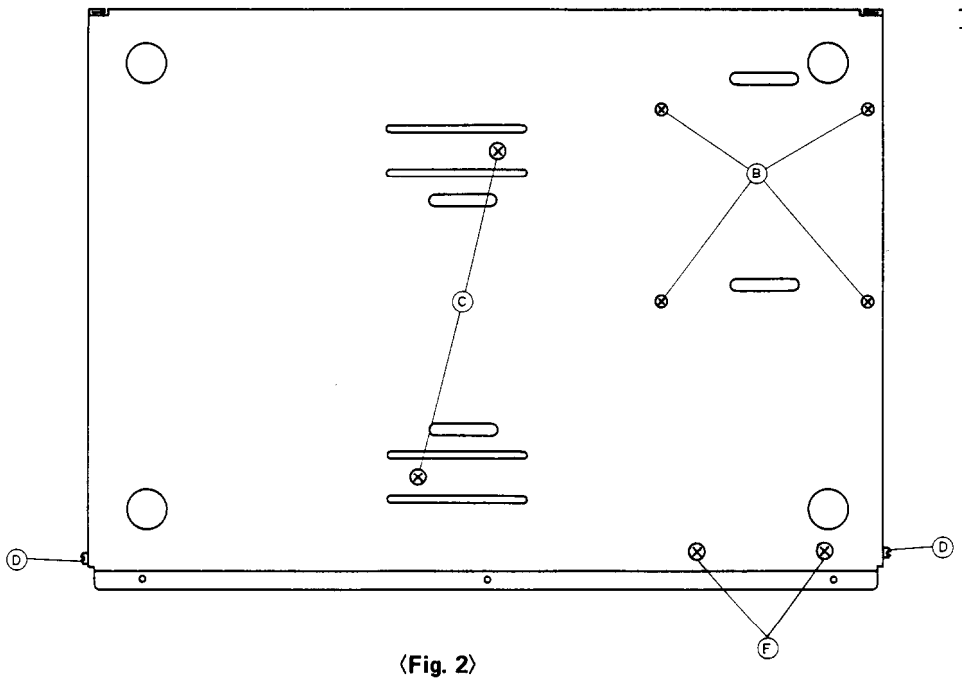
2. Front panel
Remove the top cover.
Remove the six screws holding the front panel and the front bracket.

3. Bottom board (Chassis)
Remove the top cover and the front panel.
Remove the five screws A holding the back panel and the chassis. (See Fig. 1)
Remove the four screws B and the two screws C. (See Fig. 2)
Remove the two screws D holding the chassis and the front bracket. (See Fig. 2)
Remove the three screws E on the AM/FM tuner pc board. (See Fig. 3)

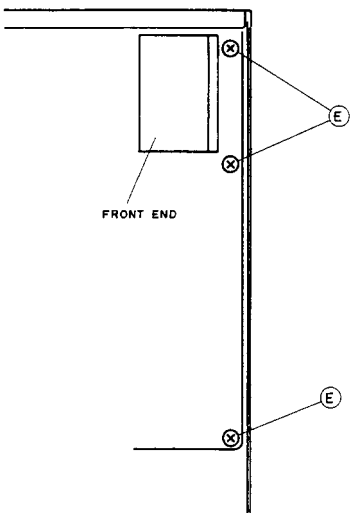
4. Front bracket
Remove the bottom board (Chassis).
Remove the bracket between the front bracket and the radiator.
Remove the two screws F. (See Fig. 2)



〈Fig. 1〉



〈Fig. 2〉



〈Fig. 3〉